Petition

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No.

In The
Supreme Court of the United States
October Term, 1981

Northern Engineering & Plastics Corp.,
Petitioner,

v.

Roger Eddy d/b/a Marshall Manufacturing Co.,
Respondent.

PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE THIRD CIRCUIT

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October 30, 1981

Petitioner prays that a writ of certiorari issue to review a decision of the United States Court of Appeals for the Third Circuit holding invalid Crisci patent 3,504,818, issued April 7, 1970, for "Tamper Proof Bottle Closure".

QUESTIONS PRESENTED FOR REVIEW

The Crisci patent in suit is directed to a closure which may be threaded onto a bottle (e.g., a milk bottle) at the time of filling and which has a break-away portion to show when the closure has been opened thereby satisfying public health standards.

(1) The opinion of the court of appeals acknowledges that the Crisci patent "attacks the problem in a conceptually opposite manner" from the prior art, that Crisci did so by "reducing the number of elements" (App. 7a); and that "To obtain simplicity is the highest trait of genius" (App. 7a, f.n. 9). The evidence shows that the invention was not obvious in fact. In those circumstances, is the Crisci invention made obvious within the meaning of 35 U.S.C. §103 because Crisci's design appears as "logical" after it becomes known?

(2) In view of the acknowledgement by the the court of appeals that Crisci proceeds in a manner that is opposite to the teaching of the prior art, is the holding that the Crisci patent is invalid for obviousness contrary to this Court's decisions in *Graham v. John Deere Co.*, (1966) 383 U.S. 1 and *United States v. Adams*, (1966) 383 U.S. 39?

PARTIES TO THIS PROCEEDING

The parties to this proceeding are Northern Engineering and Plastics Corp. of New Castle, Pennsylvania, Petitioner, and Roger Eddy doing business as Marshall Manufacturing Company, Respondent. A summons was also issued against Pacific Cap Corporation of New Castle, Pennsylvania, but that firm has never appeared or participated in the proceedings in any manner.

TABLE OF CONTENTS

PAGE

Questions Presented for Review i
Parties to this Proceeding ii
Opinions Below 1
Jurisdictional Statement 1
Statute Involved 1
Statement of the Case 2
Argument 6
Conclusion 11

Appendix
- Opinion of the Court of Appeals 1a
- Findings of Fact and Conclusions of Law of the District Court 14a
- Judgment of the Court of Appeals 22a
- Order Denying Rehearing 23a

TABLE OF CASES

PAGE

Carroll, Application of, (CCPA, 1979) 601 F.2d 1184 8

Champion Spark Plug Co. v. Gyromat Corp., (C.A. 2, 1979) 603 F.2d 361 9

Diamond Rubber Co. v. Consolidated Tire Co., (1911) 220 U.S. 428 8

Graham v. John Deere Co., (1966) 383 U.S. 1 ..... i, 6, 7, 8, 9, 10

Lee Blacksmith, Inc. v. Lindsay Bros., Inc., (C.A. 7, 1979) 605 F.2d 341 9

Republic Industries, Inc. v. Schlage Lock Co., (C.A. 7, 1979) 592 F.2d 963 9

Roanwell Corp. v. Plantronics, Inc., (1976) 429 U.S. 1004 ..... 8, 9

United States v. Adams, (1966) 383 U.S. 39 ..... i, 6, 8, 10

OTHER AUTHORITIES CITED

28 U.S.C. §1254(1) 1

35 U.S.C. §102 4

35 U.S.C. §103 ..... i, 1, 4, 6, 9, 10

Rule 20.5 1

Patent Law Perspectives, 1980 Dev. A1[1]-362 10

OPINIONS BELOW

The opinion of the court of appeals (App. 1a) as amended on July 16 and August 4, 1981, is reported at 652 F.2d 333. The district court did not file any opinion. That court's findings and conclusions (App. 14a) are not reported.

JURISDICTIONAL STATEMENT

The judgment of the court of appeals sought to be reviewed was entered on June 25, 1981 (App. 22a). A timely petition for rehearing was denied on August 4, 1981 (App. 23a). It is believed that jurisdiction is conferred on this Court by 28 U.S.C. §1254(1) and Rule 20.5.

STATUTE INVOLVED

35 U.S.C. §103. Conditions for patentability; non-obviousness subject matter.

> "A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made."

STATEMENT OF THE CASE

The Crisci patent in suit is directed to tamper proof closures for milk containers and the like. The patented closure permits a plastic cap and ring to be threaded on to the neck of a bottle at the dairy. Unthreading the closure will cause the ring to break away, thereby giving a clear indication that the bottle has been opened since leaving the dairy. The closure may be repeatedly threaded on and removed from the bottle to open and close it, but at all times the separated plastic ring will show that the closure has been opened since leaving the dairy.

The patentee, Harry Crisci, is president of petitioner. His college education was ended by financial failure of his family's milk business in the great depression of the 1930's. He returned home and went to work to help pay off family debts. Also, he helped in a dairy supply business operated by his father and has continued in that line of business to the present time.

Throughout the time of Mr. Crisci's involvement in the dairy supply business, there has been a continuing effort to ensure sanitary delivery of milk to the ultimate consumer. In response to demands for better packaging, a wide variety of tamper proof closures was developed including wired paper caps, metal caps, and heat sealed caps on glass bottles. The openings in glass bottles were ordinarily closed by paper discs that were prone to leakage. Single trip waxed paper containers obviate the need for a cap, but they cannot be resealed after opening.

Plastic milk containers began coming onto the market in the late 1950's. They were especially advantageous to smaller dairies which could not afford machinery to make paper containers. A wide variety of caps was

developed for plastic bottles including metal screw caps and paper snap-on caps, but none of those designs was tamper proof. The only available tamper proof closure was a metal cap like that used on single serving whiskey bottles which was quite expensive.

Crisci, like others, recognized a need for a better tamper proof cap for plastic bottles, but his design was not immediately forthcoming. Instead, long thought and extensive research and development were required to bring forth the cap of the Crisci patent.

Respondent had been an employee of petitioner at one time. He left petitioner's employ and went into business manufacturing a closure almost indistinguishable from petitioner's closure. In the district court, respondent contended that he, not Crisci, was the inventor of the patent in suit. The district court held against respondent on that claim, and respondent did not appeal that holding.

The design which is disclosed and claimed in the Crisci patent comprises a bottle having a neck with a molded spiral thread. Ratchet sections are molded on each side of the neck with intervening arcs that are without ratchet sections. A closure having a screw thread is threaded onto the bottle neck to close the opening in the neck. A thin flexible annular plastic ring surrounds the closure and is connected to the closure by a number of thin radial frangible elements. Angular tooth-like projections are provided at spaced intervals on the inside of the annular ring and engage the ratchet sections around the bottle neck when the closure is fully threaded onto the neck of the bottle.

The Crisci patent teaches, and the claims require, that the projections on the inside of the annular ring

be circumferentially spaced from the radial frangible elements. The projections on the inside of the ring are oriented so that as the closure is threaded onto the bottle, the projections slip over the ratchet sections on the bottle. Because the projections are circumferentially spaced from the frangible elements, and because the ring is thin and flexible, the ring flexes outwardly between the frangible elements to allow the projections to slip over the ratchet sections without damage to the frangible elements. When the closure is unthreaded the ratchet sections engage the opposing points of the projections causing the frangible elements to break as the closure is turned. The breaking of the frangible elements separates the ring from the closure and gives a clear indication that the closure has been opened since leaving the dairy.

The prior art shows various arrangements of tamper proof closures which, so far as is known, never became commercially practical. It is not contended that any one of the prior art references anticipates the Crisci patent under 35 U.S.C. §102. The defense rises no higher than the contention that the prior art references make the Crisci patent obvious under 35 U.S.C. §103.

All of the prior art references are subject to the criticism that they do not provide a practical way to thread the closure onto the bottle without also breaking away the tamper proof indicator. The Fischbach patent is the reference primarily relied on by the respondent. Fischbach sought to overcome the problem by using a very heavy and rigid cap which was expensive to manufacture and required, *inter alia*, that cuts be made in the cap after molding of the plastic. Crisci avoids the ribs and the cams of the Fischbach patent

and the necessity of making cuts in the plastic after molding.

As stated by the court of appeals:

> "Those patents (with the exception of Fischbach) make no provision for reducing, during screw-on, the stress on the frangible elements connecting the cap and the ring. Fischbach does incorporate means for overcoming this problem, although it does so by means of an additional structure that increases the production cost of the device." (App. 7a)

Crisci attacked the problem by adopting a totally different concept. Instead of meeting problems of breakage by increasing the strength of his closure, he went counter to the art and *decreased* the strength and reduced the number of elements. He provided a thin and flexible annular ring and connected it to the closure by thin radial frangible elements. He circumferentially offset projections on the inside of the thin annular ring from the frangible elements. In that manner the projections can slip over the ratchet teeth by flexing of the ring when the cap is threaded onto the bottle. His design makes it possible to thread the closure onto the bottle and keep the annular ring intact. The first removal of the closure will cause the frangible radial elements to break and the ring to separate from the closure, giving unmistakable evidence that the closure has been opened since filling.

ARGUMENT

(1) This case involves questions as to the proper construction and meaning of 35 U.S.C. §103 which governs the standard of patentability of inventions.

In the landmark cases of *Graham v. John Deere Co.*, 383 U.S. 1 and *United States v. Adams*, 383 U.S. 39, this Court laid down standards for determining issues of obviousness of inventions under §103. Those decisions mandate that:

> (a) The scope and content of the prior art are to be determined,
>
> (b) Differences between the prior art and the claims at issue are to be ascertained, and
>
> (c) The level of ordinary skill in the prior art is to be resolved.

Against that background the obviousness or non-obviousness of the subject matter is to be determined, 383 U.S. at 17.

Graham recognizes that difficulties will arise in applying the non-obviousness test:

> "What is obvious is not a question upon which there is likely to be uniformity of thought in every given factual context. * * * We believe that strict observance of the requirements laid down here will result in that uniformity and definiteness which Congress called for in the 1952 Act." (p. 18)

Petitioner submits that the court of appeals has decided the case in a way which is in conflict with this Court's decisions in *Graham v. John Deere Co.* and *United States v. Adams.*

In this case the court of appeals sought to follow the methodology laid down by *Graham v. John Deere*

(App. 6a). In its analysis of the scope and content of the prior art, the court of appeals noted that none of the prior art patents (with the exception of Fischbach) make any provision for reducing stress on the frangible elements connecting the cap and the ring. Fischbach attempted to meet the requirement "by means of additional structure that increases the production cost of the device". The ribs and cams of Fischbach, which have no counterpart in Crisci, "must be cut apart in a separate production step in order for the device to be useful" (App. 7a).

In determining the differences between the prior art and the claims at issue the court of appeals acknowledged that Crisci "attacks the problem in a conceptually opposite manner" (App. 7a).

In considering the level of ordinary skill in the art the court of appeals recognized that there had been a long search for a satisfactory tamper proof closure prior to the time Crisci made his invention (1942 to 1968). None of the workers in the art went in the same direction as Crisci who proceeded in a "conceptually opposite manner". Moreover, Crisci himself struggled with the problem for some years before finding his solution. All of those indicia are objective facts which lead to the inevitable conclusion that the Crisci invention was not obvious in fact. Since the teachings of the prior art point away from Crisci's solution those teachings would not make Crisci's solution an obvious one to a hypothetical worker in the art. Such evidence proves invention, not obviousness under Section 103 *United States v. Adams*, 383 U.S. at 51-52.

The only evidence to the contrary is testimony by respondent's expert that it would have been obvious to

him to ignore the teachings of the prior art and to imitate Crisci. Petitioner submits that expert testimony which speaks *ex cathedra* and contrary to all the objective evidence in the case does not show obviousness as the test as laid down by *Graham*. Instead, the conclusion must be based on the knowledge of those skilled in the art at the time the invention was made. See e.g. *Application of Carroll*, (CCPA, 1979) 601 F.2d 1184, 1186. If the solution was to be found in the Fischbach patent why did not respondent use that patent? Why does respondent give to Fischbach the tribute of its praise and give to Crisci the tribute of its imitation? The answer can only be (as the court of appeals recognized) that Crisci is completely different, *Diamond Rubber Co. v. Consolidated Tire Co.*, (1911) 220 U.S. 428, 441.

Petitioner submits that *Graham* requires obviousness or non-obviousness to be determined on a rational evidentiary basis and not by expert testimony to the effect that the obvious thing was to ignore and disregard the accepted beliefs of the art. The decision of the court of appeals is contrary to all of the objective evidence and is thereby in conflict with *Graham* and *Adams*.

(2) This case presents questions of public importance which go beyond the interests of the parties. This Court's opinion in *Graham* recognized that difficulties would arise in applying the test laid out there. In the intervening 15 years the case has been cited repeatedly in this Court as well as the lower Federal courts. During that time sharp differences in interpretation have arisen and become more pronounced.

In *Roanwell Corp. v. Plantronics, Inc.*, (1976) 420 U.S. 1004 (opinion dissenting from denial of a petition for writ of certiorari) it was stated that for a combina-

tion of elements to be patentable "there must be a synergistic effect that is itself nonobvious", 429 U.S. at 1006.

In *Republic Industries, Inc. v. Schlage Lock Co.*, (C.A. 7, 1979) 592 F.2d 963, it was stated that "Synergism has prevented the development of a consistent predictable body of law under Section 103", 592 F.2d at 972.

In *Champion Spark Plug Co. v. Gyromat Corp.*, (C.A. 2, 1979) 603 F.2d 361, the Second Circuit held the patent in suit valid, stating:

> "If the inventions are new, useful, and nonobvious, they are patentable. If the level of skill of a person of ordinary skill in the pertinent art is such that the differences between the subject matter sought to be patentable and the prior art would not have been obvious to that person, the test for nonobviousness is met" (p. 372).

Applying that test the Crisci patent would in all probability be held valid.

In *Lee Blacksmith, Inc. v. Lindsay Bros., Inc.*, (C.A. 7, 1979) 605 F.2d 341, the Seventh Circuit held the patent in suit invalid under Section 103, citing *Graham*. The dissenting opinion, also citing *Graham*, observed:

> "I have the difficulty of discerning how something could be obvious to those of ordinary skill in the art if in the industry where those people labor the want was felt and those people could not solve it" (p. 347).

Clearly the Crisci patent would have been held valid under the test formulated in the dissent.

The spectrum of cases throughout the Federal courts shows confusion and disagreement as to how the objective standard of *Graham* should properly be applied.

> "While it is uncertain from the foregoing discussion exactly where the law stands in the Second Circuit on the application of basic principles of Section 103 obviousness evaluations, the latest pronouncements from the Sixth Circuit in *Eltra Corp. v. Basic, Inc.* [599 F.2d 745] hardly provides cause for optimism" Patent Law Perspectives, 1980 Dev. A1[1]-362.

The instant case presents one more example of the confusion and disagreement which now exists among the various courts of appeals in resolving questions of obviousness under Section 103 as the case law has developed in the fifteen years since *Graham* and *Adams*.

Petitioner submits that it is in the public interest for this Court to review again the subject of obviousness and give much needed guidance to the lower courts and to litigants and to provide certainty as to the proper meaning of Section 103.

CONCLUSION

The Petition for Writ of Certiorari should be granted.

Respectfully submitted,
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UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT

No. 80-2218

NORTHERN ENGINEERING AND PLASTICS CORP.,

Appellant

v.

ROGER EDDY
d/b/a MARSHALL MANUFACTURING CO.,
and PACIFIC CAP CORPORATION

Appellees

APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF PENNSYLVANIA
D.C. Civil No. 78-02134

Argued February 24, 1981
Before ADAMS, ROSENN, and HUNTER, *Circuit Judges*
Opinion Filed June 25, 1981

OPINION OF THE COURT

(As Amended on July 16, 1981, and August 4, 1981)

ROSENN, CIRCUIT JUDGE.

This appeal presents the question whether a tamperproof plastic milk-bottle closure, Crisci U.S. Patent No. 3,504,818 (1970), is obvious in light of prior art. The patent was assigned to Northern Engineering and Plastics Corporation (NEPCO). Roger Eddy was employed by NEPCO in 1966-67 and contributed to development of the closure. In 1976, Eddy, having terminated

his employment with NEPCO some years before, started manufacturing Crisci-type closures without a patent license. In October 1978, NEPCO sued Eddy for infringement. Eddy defended and counterclaimed on a number of grounds. After a trial, the district court held the Crisci patent invalid on the ground that its subject matter was obvious under 35 U.S.C. §103 (1976). NEPCO appealed.[1] We affirm.

I.

Since at least 1958 those who design plastic bottle closures have been aware of the tamperproofing function that can be served by bottles with ratchet-toothed necks and caps flimsily connected to ratchet-toothed rings.[2] The two sets of ratchet toothing, one set on the bottle neck and the other on an annular ring, will engage only when the cap is unscrewed, thus exerting a force

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1. The district court's determination of obviousness disposed of NEPCO's infringement claim, thus rendering the order appealable under 28 U.S.C. §1291 (1976).

The district court also made explicit findings against Eddy on his claim that NEPCO's use of Crisci constituted a violation of sections 1 and 2 of the Sherman Act, 15 U.S.C. §§1, 2(1976). Eddy's other claims were not addressed in the district court opinion. In resisting NEPCO's appeal, Eddy again raises all of the defenses raised at trial. In particular, Eddy argues not only that Crisci is obvious, but that it is also (a) invalid for lack of novelty (35 U.S.C. §102(a)), (b) invalid for failure to identify Eddy as co-inventor (35 U.S.C. §§102(f) and 116), (c) invalid for failure to disclose enough information to enable others to make and use it (35 U.S.C. §112), and (d) unenforceable due to misuse and inequitable conduct on the part of NEPCO. In view of the disposition we reach under 35 U.S.C. §103, we need not discuss these additional defenses.

2. *See* Kundert U.S. Patent No. 2,864,521 (1958). *See also* Bardell U.S. Patent No. 3,415,403 (1968); Homma U.S. Patent No. 3,407,976 (1968); Babiol U.S. Patent No. 3,249,247 (1966); Fischbach-Spritzgusswerk German Patent No. 1,154,369 (1964); Paper Trust Reg. British Patent No. 809,396 (1959). *Cf.* Sharp U.S. Patent No. 2,280,724 (1942) (achieving the tamperproof function without ratchet-toothing).

on the ring sufficient to break the "frangible" (*i.e.*, breakable) interconnecting "elements" between ring and cap. However, the tamperproof feature is useless if the ring breaks off of the cap during screw-*on*, because the only function of the connection between cap and ring is to provide assurance to the consumer that the milk bottle has not been opened since it left the bottler.[3]

The closure at issue here, like others that have been developed, cannot be screwed off without breaking the frangible elements between the cap and the ring. As is apparent from examination of the patents listed in note 2, *supra*, the feature of the closure that requires breakage of the connection in order to *un*screw the cap was well-developed prior to the invention embodied in Crisci. The advance embodied in Crisci, however, is in the method by which it allowed the cap simply to be screwed *onto* the bottle without breaking the connection.

The force exerted by the engaging of the ratchet teeth only operates when the cap is being unscrewed. However, the ratchet teeth also create a force that tends to cause breakage of the frangible elements when the cap is being screwed onto the bottle. This force that operates during screw-on can be analyzed into two components. On one hand, the ring is subject to expansionary pressure during screw-on. The ratchet arrangement only works because the diameter of the ring is sufficiently small so that the teeth on the ring fit into the spaces between the teeth on the bottle when the cap is unscrewed. But when the ring is rotated relative to the bottle during screw-on, these teeth must pass over each other. The gliding of one set of teeth over the other

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3. Fischbach and Babiol both advert to this problem in their specifications, and both base the novelty and usefulness of their claims upon their means for overcoming the problem.

tends to cause the ring to expand, in the sense of having its diameter enlarged, when the cap is screwed onto the bottle.[4] Moreover, because the ring resists expansion, there is an inevitable drag on the ring during screw-on. In other words, while the screwing on of the cap tends to pull the ring around in the same clockwise circular motion as the cap, friction, engendered by the squeezing of the tooth-ends on the ring over the tooth ends on the neck of the bottle, tends to impede this clockwise motion of the ring.

The success of any ratchet-toothed closure will depend on the relationship between (a) the strength of the frangible connectors between cap and ring, and (b) the magnitude of the forces of "expansion" and "drag" that are *transmitted*, during screw-on, to these frangible points or elements. Roughly speaking, the former must exceed the sum of the latter. Other constraints on closure design exist. Obviously, the strength of the connectors must be limited so that the consumer can break them by screwing the cap off of the bottle. Furthermore, expansion and drag must not be reduced beyond the point at which such reduction impairs the ability of the ratchet teeth to effectively engage upon screw-off. Thus, while the strength of the connection between cap and ring must exceed the strength of the combined expansionary and dragging forces exerted on the connection during screw-on, the former is subject to a ceiling and the latter is subject to a floor.

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4. Expansionary pressure need not be uniform over the entire circumference of the ring. In fact, Babiol claims a ring that expands over the "teeth" or "cams") on the bottle only to contract in the gaps between the teeth, thus allowing the total circumference of the ring to remain constant. The ring in the Crisci patent also expands over the teeth in the screwing on process and maintains a slightly reduced diameter in the spaces between the teeth as they glide over each other.

Fischbach (the German patent) attacks this problem by wholly eliminating transmission of drag from the ring to the frangible connectors. This is accomplished by means of an extra rib/cam arrangement.[5] None of the other patents really addresses the problem of relieving stress upon the frangible connectors, although Babiol, like Crisci, uses flexibility to relieve stress on the ring and ring "teeth" (in Babiol, the ring "teeth" are referred to as "pawls").

The Crisci patent attacks the problem in a simpler, more elegant manner. Expansion and drag are absorbed by the irregularity of the outward expansion of the ring itself. Flexibility of the ring allows it to expand at certain points along its circumference without exerting a great amount of expansionary pressure at others. The crucial feature is "circumferential spacing"—*i.e.*, separation of the *necessary* expansion points (*i.e.*, the points along the circumference of the ring at which teeth are placed) from those places along the circumference of the ring at which the frangible connectors are attached to the ring. For this reason, it is significant that, as NEPCO points out, the other patents fail to disclose

> angular *projections* [i.e., teeth] on the inside of the ring which are *circumferentially spaced from the frangible elements*, and . . . outward flexing of the annular ring *between* the frangible elements to per-

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5. The ribs are part of the cap and the cams are part of the ring. During screw-on the ribs push the cams, thereby rotating the ring together with the cap. During screw-off, however, the ribs are free to move independently of the cams, thus placing all of the stress upon the frangible elements. The frangible elements in Fischbach, and in other similar devices, may be spared the brunt of expansionary pressure by placement at 45-degree angles to radial.

> mit slipover engagement of the angular projections with ratchet sections on the bottle neck.

Reply Br. at 7 (emphasis added).

It appears that, in effect, Crisci involves nothing more than the prior known designs (a) absent alternate ring teeth and connecting points between ring and cap, and (b) incorporating a slight rotation of the remaining ring-teeth relative to the connecting points. Also, to enable these changes to improve the screw-on performance of the cap, the ring is made (perhaps) more flexible.[6] The question is whether this alteration constituted a patentable invention; more particularly, whether it "would have been obvious . . . to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. §103.

II.

Although the question of obviousness is ultimately a legal one, *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 280 (1976), its resolution must be predicated on the factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1 (1966). A court must, in a case such as this, determine (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; and (3) the level of ordinary skill in the pertinent art. *Id.* at 17.

We look first to the prior art. As did the district court, we take the prior art to consist in those patents listed in note 2 *supra*. Those patents (with the exception

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6. As the district court puts it, the Crisci patent differed from the prior art reviewed by him "only in the placement, numerosity and thickness of the thin, spaced elements described by Crisci as 'frangible elements' and the protrusions on the cap and bottle, described by Crisci as angular projections and ratchet sections."

of Fischbach) make no provision for reducing, during screw-on, the stress on the frangible elements connecting the cap and the ring. Fischbach does incorporate means for overcoming this problem, although it does so by means of an additional structure that increases the production cost of the device.[7] Crisci, however, attacks the problem in a conceptually opposite manner, simply reducing the number of elements in the cap and ring.[8]

Having determined the prior art and its significance to the Crisci innovation, we inquire into the ordinary level of skill in the pertinent art. The district court correctly identified the pertinent art as the design and manufacture of closures but it did not ascertain the level of ordinary skill in that art at the time Crisci applied for his patent. On this record, however, we believe that we are in as good a position as the district court to determine that level and we see no need to remand for this purpose. The number of patents issued for bottle closures over the years between 1958 and 1968, in addition to the seminal patent issued in 1942 to Sharp, would seem to indicate an intense interest and sophisticated level of skill in the art. The various types of closures then currently available and the materials used to manufacture them were, as found by the district court, familiar to those possessing ordinary skill in the art. Elimination of unwanted breakage without utilizing the cost-

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7. In the process of molding the plastic closure, the ribs and cams are molded as one piece. They must be cut apart in a separate production step in order for the device to be useful.

8. The district court may have treated the prior art question in this case without reference to the problems specifically addressed by Crisci, Fischbach, and Babici. For instance, it found that the prior art employed ratchet teeth "so angled that the cap can be screwed on without disturbing" the frangible elements, even though each of the specifications in the three last-named patents discussed the unreliability of prior designs in allowing trouble-free screw-on.

ly production step (needed in Fischbach) of separating the ribs and cams was a typical problem for which closure manufacturers were apt to redesign their products. Cheevely, an engineer with considerable experience in the injection mold industry and in the design of tools for caps, closures, and special projects in the plastics industry, testified that he too would have looked for ways to eliminate the ribs and cams that made the Fischbach patent expensive to produce and that it would have been natural "to have gone the direction Mr. Eddy did to produce a cap" less expensively which functioned effectively.

III.

We proceed from the factual questions to the legal question whether, to those skilled in the art of tamper-proof closures, the jump from the prior art to Crisci entailed the work of the "skillful mechanic" or that of the "inventor." *Hotchkiss v. Greenwood*, 52 U.S. (11 How.) 248, 267 (1851). As the Supreme Court has recognized, the difficulties in deciding this question "are comparable to those encountered daily by the courts in such frames of reference as negligence and scienter." *Graham v. John Deere Co.*, 383 U.S. at 18 "[W]hether the variation relied upon in any particular case is anything more than ordinary mechanical skill is a question which cannot be answered by applying the test of any general definition." *McLain v. Ortmayer*, 141 U.S. 419, 427 (1891), *quoted in Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp.*, 340 U.S. 147, 151 n.6 (1950). Although the answer to the question must be sought by probing the hypothetical frame of mind of one whose aptitude for spotting improvements to the products of his art are presumably greater than ours, we must also guard against that hindsight which ren-

ders every pure concept natural, intuitive, and "obvious" just because it is fundamentally simple.[9]

Perhaps because of these difficulties, compounded by the fact that the judiciary "is most ill-fitted to discharge the technological duties cast upon it by patent legislation,"[10] the law embodies a requirement that courts defer, in at least two ways, to determinations of validity by the Patent Office.

> It is a fundamental canon governing judicial consideration in this field that a presumption of validity attaches to patents issued by the United States Patent Office. Not only has a unanimous Supreme Court noted that "patentees are heavily favored as a class of litigants by the patent statute," but this court has stated on several occasions that the burden of proving patent invalidity is a heavy one. Moreover, such invalidity must be demonstrated by "clear and convincing proof."

Universal Athletic Sales Co. v. American Gym, Recreational & Athletic Equipment Corp., 546 F.2d 530, 540 (3d Cir. 1976), *cert. denied*, 430 U.S. 984 (1977) (footnotes omitted); 35 U.S.C. §282 (1976).

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9. *Cf.* Tokyo Shibaura Elec. Co. v. Zenith Radio Corp., 548 F.2d 88, 94 (3d Cir. 1977) ("any invention, when viewed with the assistance of hindsight, appears obvious in the light of the prior art"); Globe Linings, Inc. v. City of Corvallis, 555 F.2d 727, 731 (9th Cir.), *cert. denied*, 434 U.S. 985 (1977) ("An inventor will not be denied a patent simply because his invention embodies a solution which seems simple and obvious with the benefit of hindsight."); Aronson v. Toy Devices, Inc., 1 F.2d 91, 92 (2d Cir. 1924) ("Mere simplification of a substantial character, disposing of parts which have long been in use, may amount to invention. 'To obtain simplicity is the highest trait of genius.'").

10. Graham v. John Deere Co., 383 U.S. at 36 (quoting Marconi Wireless Co. v. United States, 320 U.S. 1, 60 (1943) (Frankfurter, J., dissenting in part)).

The presumption of validity that attaches to a patent issued by the U.S. Patent Office, however, is "weakened" when the party asserting obviousness comes forward with "significant prior art not considered by the Patent Office." *U.S. Expansion Bolt Co. v. Jordan Industries, Inc.*, 488 F.2d 566, 569 (3d Cir. 1973); *accord, Aluminum Co. of America v. Amerola Products Corp.*, 552 F.2d 1020, 1024 & n.7 (3d Cir. 1977); *Escoa Fintube Corp. v. Trenter, Inc.*, 631 F.2d 682, 691 (10th Cir. 1980). Eddy claims that he has done so, because the prior art presented to the Patent Office, comprised of the claims to which Bardell and Homma were drawn, was characterized at the time by Crisci's attorney as including only rings secured to the cap by "longitudinally extending frangible portions." Crisci's frangible elements, on the other hand, are "radially extending," and so, says Eddy, are the frangible elements on Fischbach and Fapex. NEPCO, on the other hand, argues that Homma and Bardell effectively incorporated all of the significant prior art disclosed in the patents considered by the district court.

The district court did not purport to rely on any supposed deficiency in the showing made before the Patent Office.[11] Moreover, the question whether the frangible portions of the prior art closures extended radially or longitudinally is not, in itself, crucial to the relevance of the patents claimed in the district court below to constitute prior art. Rather, the relevant issue is whether the prior art before the Patent Office dis-

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11. *Cf.* Allegheny Drop Forge Co. v. Portec Inc., 541 F.2d 383 (3d Cir. 1976) (per curiam) (affirming invalidation of a patent by the district court where the latter found that the Patent Office had not considered a previously issued patent which was "identical" to the patent-in-suit).

closed ways of ensuring that the caps could be screwed on to bottles without breaking off the rings.[12] Whether or not the frangible elements were radial or longitudinal was not, in the context of this case, relevant to that question. It appears that insofar as Bardell and Homma dealt with the ability of closures to afford evidence of tampering, they were, in effect, indistinguishable from Crisci or the prior art raised in the district court.[13]

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12. The Patent Office apparently did find troublesome similarities between Crisci and the prior art; it initially rejected Crisci's claims 1-3 as being unpatentable over the patents of either Bardell or Homma. Crisci, however, amended claim 1 by describing the annular ring carried by the frangible elements as "thin flexible" and "flexing outwardly between said frangible elements as said angular projections and ratchet section engage" and the angular projections on the inner surface of the ring as "radially inwardly extending" and "circumferentially spaced from said frangible elements." Crisci's counsel also represented to the examiner that if the annular rings were not thin and flexible, it would not work. Approval of the claims followed.

13. It is true that Fischbach and Babiol, two earlier patents not before the Patent Office in connection with Crisci's application, add a dimension to the prior art not disclosed by Bardell and Homma—*viz.*, means for relieving stress upon the teeth and the frangible elements during screw-on. Fischbach also included an annular flexible ring having a plurality of circumferentially spaced radially inwardly extending angular projections on the inner surface of the ring. This ring is also carried on extended elements or crosspieces circumferentially spaced around the cap. Fischbach, however, adds a new structure to absorb the stress; it meets the breakage of the frangible elements problem in screwing the cap on "by increasing the strength of the cap and providing additional structures which transmit the forces." Crisci attacks the problem by simply reducing the number of elements in the cap and the rings.

Babiol provides a means for relieving stress upon the "pawls," but the result is a frangible element that must flex over the "cams" (Babiol refers to the teeth on the bottle neck as "cams") just as the frangible elements in each of the patents (other than Crisci) must flex over the teeth attached to the bottle. The Fischbach and Babiol specifications did disclose the utility of improvements that were missing in the other prior art. They did not for that reason, however, necessarily increase the obviousness of Crisci's improvement. The utility of the Crisci improvements would have been apparent from the day-to-day experience of manufacturing plastic milk bottles.

Thus we are not wholly persuaded that this is a case in which the presumption of patent validity has been "weakened." However, we need not resolve this presumption issue because we believe that Eddy has sustained the rigorous burden of proving that the Patent Office erred in granting the Crisci patent, even assuming that the references submitted to the Patent Office constituted, as Crisci argues, all of the significant prior art. We recognize that inventions perform an exceedingly important and useful function, especially in our complex, industrial society; but to justify a patent monopoly, an improvement must demonstrate an inventive genius which makes a distinctive contribution to 'the Progress of . . . useful Arts."[14] In this case the change in the mechanical construction by reducing the thickness of the annular ring (thereby increasing its resiliency), reducing the number of angular projections, and spacing the projections apart from the frangible elements on the inner surface of the ring did not make the admittedly improved device patentable.[15] It was not the creation of an "inventive" faculty, even though it realized better results, but rather displayed the sort of useful intelligence that any "skilled mechanic" would have been called upon to exert daily in the course of exercising his skill. Unlike the invention in *Bibel Process Co. v. Minnesota & Ontario Paper Co.*, 261 U.S. 45 (1923), Mr. Crisci's rearrangement of the "old" ele-

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14. U.S. Const. art. I, §8, cl. 8. *See generally* Graham v. John Deere Co., 383 U.S. at 5-6. *Cf.* Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp., 340 U.S. at 155-56 (Douglas, J., concurring) (distinguishing inventions "of such quality and distinction that masters of the scientific field in which [they fall] will recognize [them] as an advance" and "gadgets that obviously have no place in the constitutional scheme of advancing scientific knowledge").

15. It is not enough that an article is new and useful. *See, e.g.*, Cuno Eng'r Corp. v. Automatic Devices Corp., 314 U.S. 84, 90 (1941).

ments produced no unanticipated result; Crisci did not discover the source of a previously impenetrable difficulty in tamperproof cap design. *Cf. id.* at 67-68. Instead, Crisci deduced, from the rather simple and totally apparent geometrical properties of his product, a logical means for minimizing the otherwise necessary stress on the frangible elements of his closures during screw-on.[16]

Moreover, we see no evidence that closure designers were struggling unsuccessfully to achieve the results that Crisci achieved. In fact, it appears that many successful tamperproof plastic bottle closures have been designed and manufactured without the "circumferential spacing" that forms the heart of Crisci's improvement. We draw from this the conclusion that in all likelihood, the only reason that the Crisci design had not been "invented" prior to Mr. Crisci's effort was not so much to be found in the elusiveness of the concept he grasped, but rather in the relative triviality (in practical terms) of his refinement. Thus, we agree with the district court that based on the level of the prior art, that improvement to the bottle closure described in the Crisci patent "would have been obvious to a person having ordinary skill in the art of manufacturing closures."

IV.

The judgment of the district court will be affirmed. Each side to bear its own costs.

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16. "[A] change only in form, proportions, or degree . . . is not such invention as will sustain a patent." Pullman Inc. v. ACF Indus., Inc., 303 F.2d 83, 89 (2d Cir. 1962) (quoting Smith v. Nichols, 88 U.S. 112, 119 (1874)). *Cf.* American Infra-Red Radiant Co. v. Lambert Indus., Inc., 360 F.2d 977, 987 (8th Cir.), *cert. denied*, 385 U.S. 920 (1966) (an invention will not be "decided on the narrow issue of degree" and "the mere changing of form, proportions, or size will not alone constitute 'invention.'").

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF PENNSYLVANIA

Northern Engineering and Plastics Corporation, *Plaintiff*

v.

Roger Eddy, d/b/a Marshall Manufacturing Corporation and Pacific Cap Corporation, *Defendants*

Civil Action 78-1234

TRANSCRIPT OF PROCEEDINGS

of COURT'S OPINION in the above entitled action on June 26, 1980, by Honorable Alan N. Bloch, District Judge.

THE COURT: Based upon the pleadings in this case, the stipulations of the parties, the exhibits and the evidence presented during the trial, the court makes the following findings of fact:

1. The Plaintiff, Northern Engineering and Plastics Corporation, hereinafter called Nepco, is a Pennsylvania corporation having a place of business at 1902 New Butler Road, New Castle, Pennsylvania.

2. Defendant Roger Eddy, hereinafter called Eddy, is an individual residing at New Castle, Pennsylvania and doing business under the name of Marshall Manufacturing Company at 1 Shenango Street, New Castle, Pennsylvania.

3. Nepco is the owner of United States Patent 3,504,818, hereinafter called Patent 818, which issued to Harry Crisci on April 7, 1970.

4. Patent 818 is for a tamperproof bottle closure which requires the combination of a bottle having a threaded neck with a ratchet section and a closure which includes a threaded cap which can

be screwed on the neck of the bottle. A number of radially extending frangible elements carry a thin annular ring which surrounds the cap. Inwardly extending angular projections on the ring register with the ratchet sections and are circumferentially spaced from the frangible elements. The spacing of the angular projections circumferentially from the frangible elements permits the annular ring to flex outwardly as the angular projections slip over the ratchet sections while screwing on the cap. When the cap is unscrewed, the angular projections and ratchet sections engage, and further twisting of the cap causes breakage of the frangible elements. Tampering with the bottle cap will leave a clear indication in the form of the broken frangible elements.

5. Nepco manufactures bottle closures in accordance with Patent 818 and marks its closures with the number of Patent 818.

6. The defendant Eddy, manufactures bottle closures which are similar to those manufactured by Nepco.

7. At the time Patent 818 was issued in 1970, other patents existed for similar closures, both in the United States and in several other countries.

8. In 1942, U. S. Patent 2,280,724 was issued to John E. Sharp, assignor to the Aluminum Company of America. That patent described several variations of a closure to be made of a suitable metal such as aluminum sheet. The patent describes a basic screw-type closure consisting of a cuplike one-piece body having a closed end and a continuous de-

pending skirt ending at the bottom edge with an outwardly bead. To adapt it to include a tamper-proof feature, an integral depending skirt band would be added below the head of the basic cap and united to it by relatively narrow strips separated from each other by perforations or cuts. The bottom edge of the skirt band would be turned under an annular head or locking ring on the container. When the cap is screwed off, the narrow strips united the skirt band to the skirt of the cap would be severed by the force presented by the annular bead or locking ring on the container. The severed band would thus remain on the container and serve as evidence of tampering.

9. In 1958, U. S. Patent 2,864,521 for safety seal closures was issued to Alex Kundert. Kundert anticipated his closures would be fabricated from some flexible and resilient material such as polyethelene (sic) or some other suitable material. The U. S. Patent describes Kundert's closure as including an annular ring with a plurality of circumferentially arranged ratchet teeth adapted to engage similar teeth on the neck of the bottle. The annular ring is attached to the basic cap by bridge members. The direction of the ratchet teeth permit them to slide over each other when the closure is being screwed on. Once the closure is on, it cannot be removed, however, without breaking the bridge members and severing the annular ring from the cap. The severed ring thus remains on the container and serves as evidence of tampering.

10. In 1959, British Patent 809,398 for tamper-proof caps for bottles and other receptacles issued

to Fapex Trust Reg. The invention provided for an improved tamperproof screw cap made of a flexible synthetic resin material. The Fapex cap consists of an internally-threaded generally cylindrical recess with an attached collar. The collar is attached to the cap by points of attachment which define an area or areas of weakness at which the collar can be torn from the cap. The collar has one or more projections or teeth extending inwardly from its internal surface. Similar projections appear on the matching container. The projections on the collar of the cap and the container are so shaped and arranged that they allow the cap to be screwed on to the container. However, once it is screwed on, the projections interlock so that it cannot be unscrewed without severing the collar from the cap. The severed collar thus remains on the container and serves as evidence of tampering.

11. In 1963, German Patent 1154 369.4 for a plastic screw cap was issued to Alfred Fischbach Kuntstoff-Spritzgusswerk. That patent consisted of a screw cap and a retaining ring attached to the cap with longitudinally disposed ribs or crosspieces whose projecting feet cooperate with cams which are disposed on the upper edge of the retaining ring. The ring is also provided with internal toothing. When the cap is screwed on, the internal toothing or serrations glide over the counter-serrations on the neck of the container. When the cap is firmly screwed on, the serrations on the cap are firmly embedded in the corresponding recesses of the counter-serrations. When the cap is unscrewed, the pressure of the serrations coming in contact with

the counter-serrations breaks the crosspieces attaching the retaining ring to the cap. The severed ring thus remains on the container and serves as evidence of tampering.

12. In 1964, U. S. Patent 3,249,247 for a bottle closure issued to P. H. Babiol. This closure consists of a basic screw cap with an integral ring connected to its lower portion with flexible pawls. The pawls are flexible and compressible so that when the cap is screwed on a container, the pawls are compressed as they ride over cams extending from the container. When the cap is completely screwed on, the inside diameter of the ring fits snugly over the diameter of the cams. However, when the cap is unscrewed, the pressure of the ring against the cams causes the pawls to break and the ring to be severed from the cap. The severed ring thus remains on the container and serves as evidence of tampering.

13. Harry Crisci knew of the Sharp patent prior to beginning work on his closure and sought to adapt it to plastic containers.

14. Prior to perfecting his closure, Crisci went through a process of testing various designs which resulted in adjustments in the thickness of the materials used and the placement of the frangible elements and angular projections.

15. Although each of the prior art patents listed above employs varying terminology to describe the components of the closures, each involves a threaded cap with a ring attached to it by a series of thin, spaced elements. Each ring also in-

cludes protrusions which engage like protrusions on the container. The protrusions are so angled that the cap can be screwed on without disturbing the thin elements attaching the ring to the cap. However, when the cap is unscrewed, the protrusions on the cap butt up against the protrusions on the bottle, causing the elements to break, severing the cap from the bottle.

That should be corrected to read severing the ring from the cap.

The severed ring thus remains on the bottle or container as evidence of tampering.

16. Patent 818 differs from these prior art patents only in the placement, numerosity and thickness of the thin, spaced elements described by Crisci as "frangible elements," and the protrusions on the cap and bottle, described by Crisci as angular projections and ratchet sections.

17. Individuals possessing ordinary skill in the art of designing and manufacturing closures have knowledge of the various types of closures currently available and the materials used to manufacture them. They are also familiar with the characteristics of these materials.

18. In 1975, Nepco filed an action against Blackhawk Molding Company, Inc. in the United States District Court for the Northern District of Illinois for a breach of a license agreement. A counterclaim was asserted by Blackhawk against Nepco for invalidity of Patent 818.

19. The court in that action subsequently granted Nepco's motion to voluntarily dismiss its

suit against Blackhawk and Blackhawk's motion for a declaration of invalidity.

20. However, on September 5, 1978, the court dismissed its previous order and dismissed both the complaint and the counterclaim with prejudice.

21. This action was instituted by the plaintiff Nepco against the defendant Eddy on October 27, 1978.

Based upon those findings of fact the court makes the following conclusions of law:

1. This court has jurisdiction of this action by virtue of 28 USC Sections 1331, 1337, 1338, 2201, 2202 and 1400(b). Venue is based on 28 USC Section 1391(b) and 15 USC Section 22.

2. Based on the level of the prior art, the bottle closure described in Patent 818 would have been obvious to a person having ordinary skill in the art of manufacturing closures.

3. The development of the bottle closure described in Patent 818 was the work of a skilled mechanic and not the work of an inventor.

4. Patent 818 is invalid under 35 USC Section 103 which provides: "A patent may not be obtained if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."

5. Because Patent 818 is invalid, defendant Eddy did not infringe any patent by manufacturing

closures substantially similar to those manufactured by Nepco.

6. The right of access to the courts is one aspect of the right to petition the government, an activity protected by the First Amendment to the United States Constitution. However, the judicial process may be abused by a pattern of baseless, repetitive claims.

7. A series of ill-founded patent infringement actions in bad faith can constitute an antitrust violation under 15 USC Section 2.

8. Nepco's institution of its case against Blackhawk in 1975 and its subsequent institution of this case in 1978 after the order adjudging Nepco's patent invalid in the Blackhawk case had been vacated and Blackhawk's counterclaim dismissed with prejudice is not such a pattern of repetitive, baseless claims or a series of ill-founded patent infringement actions.

9. Defendant therefore has offered no convincing evidence which would indicate that plaintiff Nepco had either the intent to monopolize the market or the requisite monopoly power in the market.

Therefore, judgment will be entered for the defendant on the complaint, and for the plaintiff on the counterclaim.

Court will adjourn.

UNITED STATES COURT OF APPEALS

FOR THE THIRD CIRCUIT

No. 80-2218

NORTHERN ENGINEERING AND PLASTICS CORP.,

Appellant

vs.

ROGER EDDY
d/b/a MARSHALL MANUFACTURING CO.
and PACIFIC CAP CORPORATION

(D. C. Civil No. 78-02134)

ON APPEAL FROM THE UNITED STATES DISTRICT COURT FOR THE WESTERN DISTRICT OF PENNSYLVANIA

Present: ADAMS, ROSENN and HUNTER, *Circuit Judges*

JUDGMENT

This cause came on to be heard on the record from the United States District Court for the Western District of Pennsylvania and was argued by counsel on February 24, 1981.

On consideration whereof, it is now here ordered and adjudged by this Court that the judgment of the said District Court, entered June 26, 1980, be, and the same is hereby affirmed. Each side to bear its own costs.

ATTEST:

/s/ N. ELIZABETH FERGUSON
Chief Deputy Clerk

June 25, 1981

UNITED STATES COURT OF APPEALS

FOR THE THIRD CIRCUIT

No. 80-2218

NORTHERN ENGINEERING AND PLASTICS CORP.,

Appellant

v.

ROGER EDDY
d/b/a MARSHALL MANUFACTURING CO.
and PACIFIC CAP CORPORATION

SUR PETITION FOR REHEARING

En Banc

Present: SEITZ, *Chief Judge*, ALDISERT, ADAMS, GIBBONS, ROSENN, HUNTER, WEIS, GARTH, HIGGINBOTHAM and SLOVITER, *Circuit Judges*.

The petition for rehearing filed by Appellant in the above entitled case having been submitted to the judges who participated in the decision of this court and to all other available circuit judges of the circuit in regular active service, and no judge who concurred in the decision having asked for rehearing, and a majority of the circuit judges of the circuit in regular active service not having voted for rehearing by the court in banc, the petition for rehearing is denied.

BY THE COURT,

/s/ ARLIN M. ADAMS
Circuit Judge

Dated: August 4, 1981